

**2011 NDIA GROUND VEHICLE SYSTEMS ENGINEERING AND TECHNOLOGY
SYMPOSIUM
HUMAN CAPITAL DEVELOPMENT (HCD) MINI-SYMPOSIUM
AUGUST 9-11 DEARBORN, MICHIGAN**

**REALIZING TOTAL HUMAN POTENTIAL THROUGH THE
LEADERSHIP**

Andrew O. Thomas

Author Two

B-WIKI-ME.com/ Chios Enterprise
Detroit, MI

ABSTRACT

This document describes how to maximize the human potential/capital of your system or business by developing a Corporate Awareness. It explains and defines how Leadership, Leadership Process and human potential interrelate. It next focuses on the relation between Leadership Process and corporate culture, giving suggestions on how to develop a Corporate Self Awareness, leading to the ability to control corporate culture, in a manner that maximizes the human potential of the system/business.

Next there is a discussion of solutions based on mathematical formulas and algorithms that can be implemented to define and measure Leadership Process using modern free source IT tools. Finally, this paper will provide support for aligning system/business mission/products with the Leadership Process so that Leadership maximizes the system/business human potential. It will suggest that modern IT tools be implemented as part of the solution and provide the concept of B-WIKI as a solution.

INTRODUCTION

Leadership is the method by which others are led in order to achieve a common goal. The Leadership Process is the process that produces Leaders within a system. Leaders are those actors within a system that make decisions. Within a system Leadership exists as a method to lead actors towards system achievement. However, seldom is Leadership explicitly mapped out or identified. When this failure to map out or identify Leadership occurs, the Leadership part of a system ends up with unanalyzed requirements, definitions and metrics, leading to inefficiencies in human potential, ultimately preventing a system from realizing its full potential.

The Leadership Process exists and produces Leaders at all levels of a system within any group where human interaction occurs and decisions are made. The ownership of that Leadership Process belongs to the group, independent of any authority. True Leadership occurs when the actor acts independent of authority; the actor is not influenced by authority, but instead acts alone to further the best interest of the system. A system must utilize a true Leadership Process in order to promote true Leaders. True Leaders, in turn, realize the human potential of the system. In order to maximize the human potential of any system the Leadership

Process must be actively managed on all levels of the system. This includes the designing and definition of the system, the implementation and execution of the system, and the actual use and operation of the system. Understanding of this concept gives the necessary insight to see how the Leadership Process must be defined.

The Leadership within a system must help to resolve conflict, diffuse arguments and prevent inconsistent results. This is accomplished through negotiation and consensus building. In order for your system to realize its total human potential, those functions of Leadership must also be defined and provided requirements. It is possible that the system will need to define for itself a set of conflict resolution rules and expected results¹.

If the system designer does not actively address the human potential of the system, especially the potential contained within the Leadership and Leadership Process, the system will become inefficient when the Leaders are not properly aligned within the system.

¹ Open Source Software such as Groucho can be used for this—visit <http://sourceforge.net/projects/groucho/> for more information.

The Leader, or actor, uses Leadership as a method to achieve tasks within a system that requires leading. For example, a system may require decisions to be made by one individual, or actor, in a system that has multiple individuals, or actors. The actor will make decisions through Leadership. As a Leader the individual finds himself in a position to make decisions. The way that an individual becomes a Leader is through the Leadership Process. Therefore, the system should be designed in such a way that the Leadership Process puts the necessary Leaders in position to lead. This will allow the Leaders to use Leadership in a desirable way to achieve the correct result.

As a natural product of this, a culture² develops within the system, this culture is the environment that will produce and enable the Leadership Process (Ganly, 2010)[5]. In order to properly control the Leadership, conform and control the culture as much as possible. If the culture cannot be controlled, a more thorough understanding of the culture and how it interrelates to the Leadership Process is necessary to ensure the most effective system is being created.

A Leadership culture produces Leaders that are bred within the Leadership Process. It is important to remember that when producing a product, such as hardware, a manufacturing method, or an innovative idea, through a process that the enterprise is an enabler of the process. The process simply would not exist if no enterprise was there to execute it. In the same vein, the Leadership Process is an enabler to the process, which is driven by the intrinsic culture.

One of the key pieces of culture is that it greatly defines how communication occurs, in what context communication occurs and how authority is perceived and reacted to (Schall, 1983)[14]. In the case of a system, the communication and social interaction lines will be in direct linkage to the culture, furthermore, the product produced by the system will be mirrored in structure to how the communication lines within the system are constructed—Conway’s Law (Basili, Murphy, Nagappan, 2008)[2]. There is not a good system or company culture for the culture’s sake; rather, there is an ideal culture for the type of product you want to create. It is important to realize, as we move into a knowledge based economy, that the culture will become more important as originality of ideas becomes more valuable.

A good map of a system’s culture can be realized by drawing a social network map of the system’s

² culture – the total of the inherited ideas, beliefs, values, and knowledge, which constitute the shared bases of social action (World English Dictionary)

communication lines³ (Fig 1.0). An analysis of how information flows in and out of the system will help illustrate whether the system’s communication network consists of open dialogues with many avenues of communication or a linear top down communication network. If the system has many open avenues of communication, the system has a social communication network in place. If a network has a linear, or single funneled communication network in place, the system has a management controlled communication network.

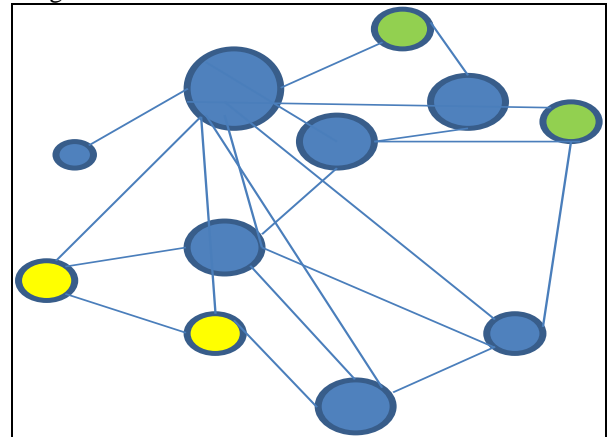


Figure 1: A typical Social Network Map. The lines represent the communication connections. The circles represent the nodes or people.

Analyzing a system’s communication network involves surveying the entire team and understanding what types of communication each person is receiving and sending, with whom do they communicate, and how often they communicate with others in the system. If the system has a linear communication system, communication moves in one direction, from the top down. Therefore individuals either receive or give directives. There is little room for those on the bottom to provide feedback, and this lack of reception to feedback by those at the top hinders the Leadership Process. If a social network communication system is employed, the result is better communication within the organization. All communication is valued, regardless of the position of the sender.

A Communication Network Map can be created using data from the communication analysis. The Communication Network Map should be used to identify the key nodes of communication within the system. Once the key nodes have been identified, a system of numbers may be assigned to the nodes. The nodes should be numbered according to the amount and type of communication that is being sent. Using

³ Open Source Software such as Sonivis can be used for this – visit <http://www.sonivis.org> for more information.

this information will result in the creation of a power structure of the organization. From this view it is possible to determine if a social or management communication network exists.

If a social based culture exists the Leadership Process will be open, available, and accessible to the entire community. An open communication network encourages Leadership. Much like cream rising to the top, individuals will naturally assume Leadership roles, independent of restriction. This culture lends itself to the creation of a wide range of leaders, just in time, with just the right skills, as part of the collective will.

When beginning to study and align the corporate culture to the product, keep in mind that a social network answers to the people and a management network answers to the system. If the goal is to have the people to be ruled by the system, then a management network communication based culture should be implemented. However, if the goal is to have a system that answers to the people within it, which in turn maximizes the human potential, a social communication network must be instituted. This is also holds true for the types of solutions produced by a product or systems development process.

When evaluating and implementing a system culture it is important to remember that self imposed goals dictate more positive behavior than institutional controls (Straker 2011)[13]. Therefore, a culture that encourages self-imposed objectives, instead of creating self-imposed hurdles, will have a much smoother and more efficient Leadership Process, due to the cultural skids that drive the personnel masses into Leaders.

The system's culture will greatly influence the Leadership Process in the same way that the type of driving influences the car an individual drives. If the individual will be driving in a race they will drive a performance based car. Therefore, they should not be surprised when they have no room to pack groceries. That is, there is no mystery as to why a system is lacking in innovation or fresh ideas when a dictatorial culture has been established. A dictatorial style of management requires top down communication, in which permission is needed to present and accept new ideas.

It is important when analyzing a system's culture to understand the type of communication pipelines that define the way information flows within the system. Four main communication pipelines have been identified as common throughout organizations. These include the grapevine, the decision network, the innovation network, and the strategy

network. Each one carries a specific type of information (Krebs, 1992)[11].

The first pipeline, the grapevine, is used to carry rumors, gossip and innuendo. The second pipeline, the decision network, is used to exchange ideas, to give advice, and to receive input that is critical to decision making. The third avenue is the innovation pipeline, which is used to discuss new ideas. The fourth pipeline, the strategy network, is where discussions about outside influences and effects take place. Understanding the connection nodes within these networks ensures that the proper people are receiving the correct information for their defined roles.

In order to promote innovation as part of the system design process, it is necessary to create nodes that maximize the innovation pipeline. There should be in place an organization structure that highlights the innovative idea communication paths. It is equally important to minimize those communication paths that may be detrimental to innovation, such as the decision network, which tends to lock in designs early without allowing for a reevaluation of the product design once the process has begun.

As the design progresses forward, it may be necessary or desirable to re-align the communication paths to emphasize decision making and to reduce innovation as actual production of the system comes closer to completion. This realignment can be accomplished by mapping out the social interactions of the individuals involved with a design team, as mentioned above.

The communication network analysis will illustrate the balance of social and job interaction Leadership that is necessary to create the best mix of human potential realization. The system will produce a result or product that reflects its culture. A noncreative and conservative culture will create a noncreative and conservative result or product. While a creative and progressive culture will create a creative and progressive result or product.

As a generalization, within the global community it is possible to see how different cultures generate different results (Herper, 2011, Blum & Lewis, 2010)[3,7,8]. Dictators will often accomplish a lot of practical projects, such as building infrastructure at the cost of innovation. While democracies have a tendency to generate many innovative products, they often find it difficult to accomplish simple tasks, such as re-paving a road.

This is true not only for government, but also for private enterprise. Evidence to support this claim can be found when reviewing the culture, Leadership styles and

innovative results of many of today's industry leaders (Aiman-Smith, 2004)[1]. An open culture such as Google produces a high number of unique products (Kehaulani Goo, 2006 & Mainardi & Jaruzelski, 2011)[9,11]; while a top down closed culture, such as the Army, produces the same basic system, with incremental improvements equivalent to the rate at which the Leadership accepts innovation within its own ranks (Pierce, 2010)[12].

So how is a system that is self-aware of the Leadership Process and the influences of the Leadership Process created? In order to accomplish this, the organization must increase the system's or company's Corporate Self Awareness. Corporate Self Awareness involves not only knowing who the corporation is corporately, but also understanding how external environmental stimuli affect the corporation's culture and influence the corporation's Leadership Process.

Any system that becomes self aware in this fashion will be able to more efficiently realize their maximum human potential than a system ignorant of who they really are (Church, 1997)[4]. Simply put, this means just because a corporation may think they know themselves, they may actually not. Therefore, the corporation will continue to act in manner consistent with its perception of itself, rather than the actuality of what it is. This misperception will ultimately lead to inefficiencies in the Leadership Process, Leadership and the overall human potential. This is often what happens when a system begins to discuss Leadership; all the Leaders look at each other and agree that they are all good Leaders.

When beginning to draw out the human potential within the system through the Leadership Process, it is important to remember that human potential becomes constrained within an oppressive system. In short, a creative culture cannot exist within a culture that is restricting human potential.

When designing the system, the Leadership Process should use cultural mapping as the molding factor for the success of the Leadership Process. If a restrictive culture is institutionalized, then the Leadership Process will find difficulty to producing unique leaders with innovative ideas and alternative approaches.

The most significant point to remember is that the enterprise must enable the Leadership Process to produce the type of Leaders that align with the system's goals. If the desire is to instill creativity and innovation as part of the process, then there must be a Leadership Process that produces creative and innovative Leaders in place. The true human potential of creativity cannot be realized if your Leadership Process produces rigid leaders.

The final stage in Corporate Self Awareness is to understand the bias used in evaluation of leaders. A study on Creativity and Leadership Perceptions has shown that in general there exists a bias against creative people as being leaders. In this study it was shown that opinions about a person's ability to lead were in correlation to their perception as creative or having Leadership potential. In short, creative people were perceived to have lower Leadership potential (Kamdar, & Mueller, 2010)[5].

It is import to understand this bias in order to ensure that a system is creating the type of Leaders it needs within its Leadership Process. The Leadership Process must be aligned properly with the system's strategy. If the system's strategy dictates that creativity and innovation are needed for a major part of future growth and system execution, then Leaders must be produced that are creative and innovative. Therefore, the Leadership Process should be producing creative Leaders, which may require that the bias of Leadership potential and creativity be addressed in order to prevent the reduction of human potential within the system.

In the event that no Leadership Process has been defined, do not assume that the process is not taking place. It is a fact that Systems Engineering is itself a process or system that produces systems or products can be seen. Therefore, the Leaders produced within the System's Engineering group are a direct result of the Leadership Process.

When working with systems dealing specifically⁴ with concept and development phases of system design, it is important to begin by mapping out the social network nodes that exist within the system. This will result in the creation of indispensable tool which will reveal the underlying current of the system's emerging Leadership Process. After creating the social network map, it is time to begin to defining the Leader types that are desired to exist within the system. It is important to ensure that the communication nodes properly connect with the Leader strategy. Doing this ensures that the culture inherent to the system will, through

⁴ For business specifically, when beginning to design a large system that involves a system design process you need to map out the organizational structure of that design team. In doing this you should understand the goals of the system to be designed or produced and line up your design team Leadership Process to match the ultimate product. That is to say, if you want an innovative product, you need a design team structure that allows for innovative leaders to be produced, thus you need a Leadership Process that promotes innovation.

its inherent true Leadership Process produce the Leaders needed.

Failure to map out the social network nodes may result in inefficiencies. For example, in the normal course of performing their work, soldiers have many decisions to make. Yet no one seems to be defining the Leadership or Leadership Process at the system level. This results in failure to fully utilize the human potential. Leadership Process must be discussed to ensure that the total human potential of the system is realized. Since the Leadership Process delivers Leaders, it is important look at the current Leaders produced in the current system to see how effective the current Leadership Process is for a given system.

The analysis of current systems will generate Leadership enabling requirements for future systems. Important things to consider include the individual's awareness of a situation, the use of communication within the system, opinion polls, and feedback loops. It may be necessary to map out the most relevant information to be accessible for a decision. This analysis may also be used to generate Leadership Process requirements, such as 90% of all actors within the system must have at least 2 communication paths.

Defining the Leader and Leadership Process requirements ensures that the system will enable the proper Leadership Process to flourish. In short, requirements for the Leader, Leadership and Leadership Process must be defined in the design stage of the system to ensure total alignment within the system.

To assure alignment of the Leadership Process within the system, the Leadership Process must be tested. In order to test the requirements of Leadership Processes, it is necessary to implement metrics that are measured throughout the life cycle of the system. One of the most important processes within the system is the high level process that takes an input and turns that input into a viable, usable, and delivered output.

However, in terms of truly understanding the Leadership Process, it is important to compare the system's current Leaders against the ideal Leader that is desired. The gaps that appear within the current Leaders will be those requirements that get defined as parts of the Leadership Process change. The goal of the Leader should be to release the total human potential of the system; the Leadership Process should produce Leaders who do that.

If time is taken to properly establish the Leadership Process at all levels, it will be possible to successfully maximize the human potential of the system. If time is not

taken there will most likely be inefficiency in human potential, which will result in countless hours and dollars spent trying to figure out how to fix the system's hardware, when in actuality, it is the system's Leadership Process that is not designed correctly.

So what is the solution? Well, no single answer exists, but rather a litany of options, most of them technology based or enabled, that can be used to generate Corporate Self Awareness. The options include using things such as social interaction mapping, communication mapping, mind mapping, cultural analysis, and modern theory on human thought and interaction, all of which can be analyzed by IT solutions.

One way to ensure the IT system's inclusion in the Leadership Process is through the use of the B-WIKI development process⁵. B-WIKI is a modern structure for modern management, putting concept and vision into practice. B-WIKI combines the corporate information, management workflow, and work processes into one easy to use platform.

This is done through an IT analysis of the company. After which an IT platform is created specifically for the individual system. By including the IT system in the Leadership Process, the entire IT system becomes is an integral part of the system's overall goal, regardless of whether the goal includes production, design, or winning the peace.

REFERENCES

- [1] Aiman-Smith, L. (2004). What Do We Know about Developing and Sustaining a Culture of Innovation. Retrieved from http://cims.ncsu.edu/downloads/Research/71_WDWK_culture.pdf
- [2] Basili, V., Murphy, B., & Nagappah, N. (January 2008). The Influence of Organizational Structure on Software Quality: an Empirical Case Study. Retrieved from <http://research.microsoft.com/apps/pubs/default.aspx?id=70535>
- [3] Blum, J., & Lewis, S. (July 9, 2010) World's 10 Largest Construction Projects. Retrieved from http://archrecord.construction.com/news/daily/archives/2010/100709Top_Construction_Projects.
- [4] Church, A. (1997). Managerial Self-Awareness in High-Performing Individuals in

⁵ Link: B-WIKI-ME.com

- Organizations. *Journal of Applied Psychology*. 82, 2. 281-292. Retrieved from [http://web.uta.edu/management/vandyke/1997-Church-Managerial% 20Self% 20Awareness.pdf](http://web.uta.edu/management/vandyke/1997-Church-Managerial%20Self%20Awareness.pdf)
- [5] Ganley, S. (October 21, 2010). The Six Dimensions of Socialization in Organizations. Retrieved From <http://www.helium.com/items/1989670-the-six-dimensions-of-socialization-in-business>
- [6] Goncalo, J., Kamdar, D., & Mueller, J. (2010). Recognizing Creative Leadership: Can Creative Idea Expression Negatively Relate to Perceptions of Leadership Potential? Retrieved from [http://www-management.wharton.upenn.edu/mueller/docs/Mueller_ Goncalo_ Kamdar-JESP_creativity-leadership.pdf](http://www-management.wharton.upenn.edu/mueller/docs/Mueller_Goncalo_Kamdar-JESP_creativity-leadership.pdf) and <http://digitalcommons.ilr.cornell.edu/articles/340/>
- [7] Herper, M. (May 25, 2011). The Most Innovative Countries in Biology and Medicine. Retrieved From <http://blogs.forbes.com/matthewherper/2011/05/25/the-most-innovative-countries-in-biology-and-medicine-2/>
- [8] Herper, M. (May 25, 2011). The Most Innovative Countries in Information Technology. Retrieved From <http://blogs.forbes.com/matthewherper/2011/05/25/the-most-innovative-countries-in-information-technology/>
- [9] Kehaulani Goo, S. (October 21, 2006). Building a ‘Googley’ Workforce: Corporate Culture Breeds Innovation. *The Washington Post*. Retrieved from <http://www.washingtonpost.com/wp-dyn/content/article/2006/10/20/AR2006102001461.html>
- [10] Kerbs, V. (1999) *Social Network Analysis—Financial Services Company Los Angeles 1992*. Retrieved from http://www.orgnet.com/walk_thru.html
- [11] Mainardi, C., & Jaruzelski, B. (April 4, 2011). The World’s 10 Most innovative Companies and How They Do It. *Forbes*. Retrieved from <http://www.forbes.com/2011/04/04/10-top-innovative-companies-apple-google-leadership-managing-how.html>
- [12] Pierce, J. (September 2, 2010). Is the Organizational culture of the U. S. Army congruent with the Professional Development of the Senior Level Officer Corps? Retrieved From <http://www.strategicstudiesinstitute.army.mil/military-leadership/military-culture/>
- [13] Straker, D. (2011). Intrinsic Motivation. Retrieved from http://changingminds.org/explanations/theories/intrinsic_motivation.htm
- [14] Schall (1983). A communication-riles approach to organizational culture. *Administrative Science Quarterly*, 28